Photo Credits

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The following images copyright CMSP, Inc.: human hair, window mold, cat hairs, cotton fibers, skin, cross section of a pine needle, cross section of a chrysan themum leaf, deer tick, greenbottle fly maggot on beef, streptococcus bacteria, dental floss with plaque, table salt, starch granules in wheat flour, cockroach leg, head louse on a human hair, dust mite, chromosomes, head of leech, newsprint paper, human eye, tongue with bacteria, blood-filled aorta, and animal cell

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Educational Insights®

GeoSafari®

EI-8803
Ages 8+
Grades 3+

Talking Electron Microscope™

The amazing Scanning Electron Microscope

Most of the fantastic images in the Talking Electron Microscope were created with a Scanning Electron Microscope.

Conventional microscopes use glass lenses to bend light to create a magnified image. The Scanning Electron Microscope bombards the image with electrons instead of light waves. The resulting images are super-detailed 3-dimensional images that are at much higher magnifications than can be accomplished with a light microscope.

The images in the Talking Electron Microscope reveal the amazing detail and complexity of living things and tiny structures in the world all around us.

1. Push the on/off button to begin
When you see the GeoSafari screen in the eyepiece, you'll know that your Talking Electron Microscope is ready to use.

2. Pick a category
Press select to learn about the first category. Press the up or down arrows to see the other categories and press select to choose one.

- ANIMALS
- VIRUSES AND BACTERIA
- THE HUMAN BODY
- "STUFF"
- PLANTS

SELECT
REPEAT

3. Pick a game: Facts or Quiz

Press this button for Facts

Press this button for Quiz

4. Pick a specimen
Press select to learn about the first specimen. Press the up or down arrows to see the other specimens and press select to choose one.

5. HOME
Press the home button anytime to return to the main category listing.

6. Now the Talking Electron Microscope will begin with fun facts or a quiz!
You may switch from Facts to Quiz at anytime by pressing the other button. To change specimens, press the HOME button.

Facts
Each time you press the arrow keys in Facts mode, the Talking Electron Microscope will say an interesting fact about the image in the eyepiece. The display will automatically zoom and pan the image to focus on the part of the image that the fact is about.

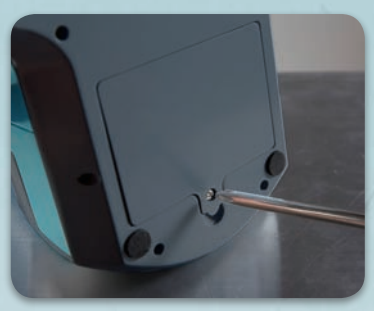
Quiz
Each time you press the arrow keys in Quiz mode, the Talking Electron Microscope will ask a question. Some questions are True or False. Press **A** for true. Press **B** for false. Some questions are multiple choice. Listen to the question and select your choice **A**, **B**, or **C**.

Look into the microscope for hints that will help you answer questions. The display will automatically zoom and pan the image to focus on the part of the image that the question is asking about.

Keep in mind....

- Forgot to turn it off? The Talking Electron Microscope will power down on its own.
- Use the focusing dial to adjust the focus of the Talking Electron Microscope for individual use.

Battery Installation
GeoSafari Talking Electron Microscope uses three C batteries.



1. Carefully remove the screw to lift the battery compartment door, located on the bottom of the Talking Electron Microscope.

2. Install three fresh C batteries in the battery compartment, as shown.

- Do not use rechargeable batteries.
- Non-rechargeable batteries are not to be recharged.
- Do not mix old and new batteries.
- Do not mix different types of batteries: alkaline, standard (carbon zinc) or rechargeable (nickel – cadmium) batteries.
- Only batteries of the same or equivalent type are to be used.
- Batteries must be inserted with the correct polarity.
- Remove exhausted batteries from the unit.
- The supply terminals are not to be short-circuited.

3. Close the compartment door and tighten the screw.

How to Reset
If the microscope should malfunction, turn it off and then on again. If that doesn't help, try inserting new batteries.

Cleaning Instructions
Clean product with a damp or dry cloth. Do not immerse or spray any liquid or water on product.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

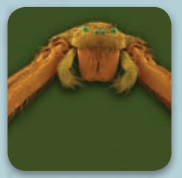
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into a different outlet from the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Note: The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Animals

Bean weevil and bean seed

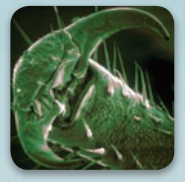
Northern house mosquito


Brown recluse spider

Spinneret of spiny orb-weaver spider

Head of monarch butterfly

Scales on monarch butterfly


Cockroach leg

Pill bug

Head louse on a human hair

Cat tongue papillae

Deer tick

Skin of dogfish shark

Greenbottle fly maggot on beef

Hummingbird feather

Red ant

Housefly

Dust mite

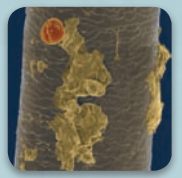
Red spider mite

Grasshopper head

Yellow jacket wasp stinger

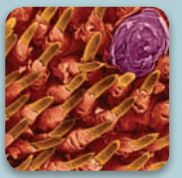
Head of leech

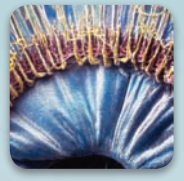
The Human Body

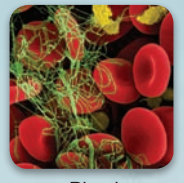

Mucus and pollen grain on a nose hair

Skin

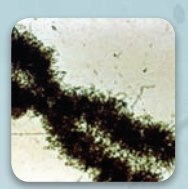
Bone


Tongue with papillae and taste buds


Human eye

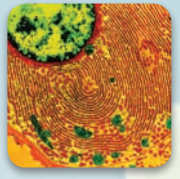

Blood

Blood-filled aorta


Chromosomes

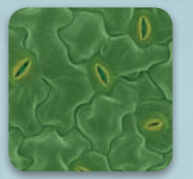
Sperm and egg

Human hair


Animal cell

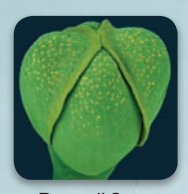
Plants

Blade of grass

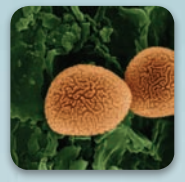

Surface of rockcress leaf

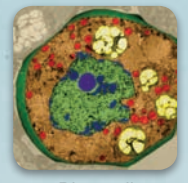
Rose petal

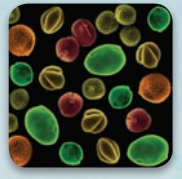
Cross section of a pine needle


Broccoli floret

Diatoms


Moss spores on moss

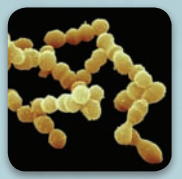

Plant cell

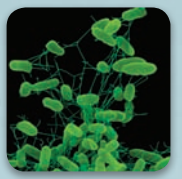

Pollen grains

Cross section of a chrysan themum leaf

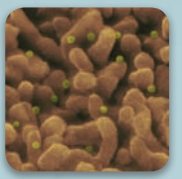
Root of a germinating radish seed

Viruses and Bacteria


Streptococcus bacteria

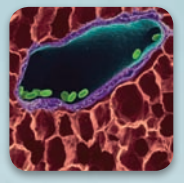

Salmonella bacteria

E. Coli Bacteria on surface of small intestine


Rhinovirus (common cold)

Tongue with bacteria

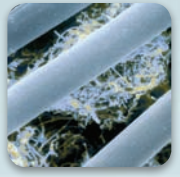
Antibiotic treatment on E. Coli

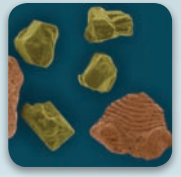

Anthrax virus

"Stuff"

Table salt

Velcro™ fastener


Dental floss with plaque


Sand grains

Cat hairs

Newsprint paper

Egg shell

Cotton fibers

Window mold

Starch granules in wheat flour